RESTORATION ADVISORY BOARD

Little America
March 23, 2004

AGENDA

- Introduction
- Approval of Minutes November 18, 2003
- Discussion/Questions on Environmental Restoration Project Status
- Community Co-Chair Election
- Draft Revised Proposed RAB Rule
- Potential Remedies for Zone D Groundwater
- Discussion/Question & Answer Session
- Meeting Logistics
  - Recommendation: May 18, 2004 at Little America
- Adjournment

APPROVAL OF MINUTES

November 18, 2003
Meeting

Discussion/Questions on Environmental Restoration Project Status

NEW CO-CHAIR ELECTION

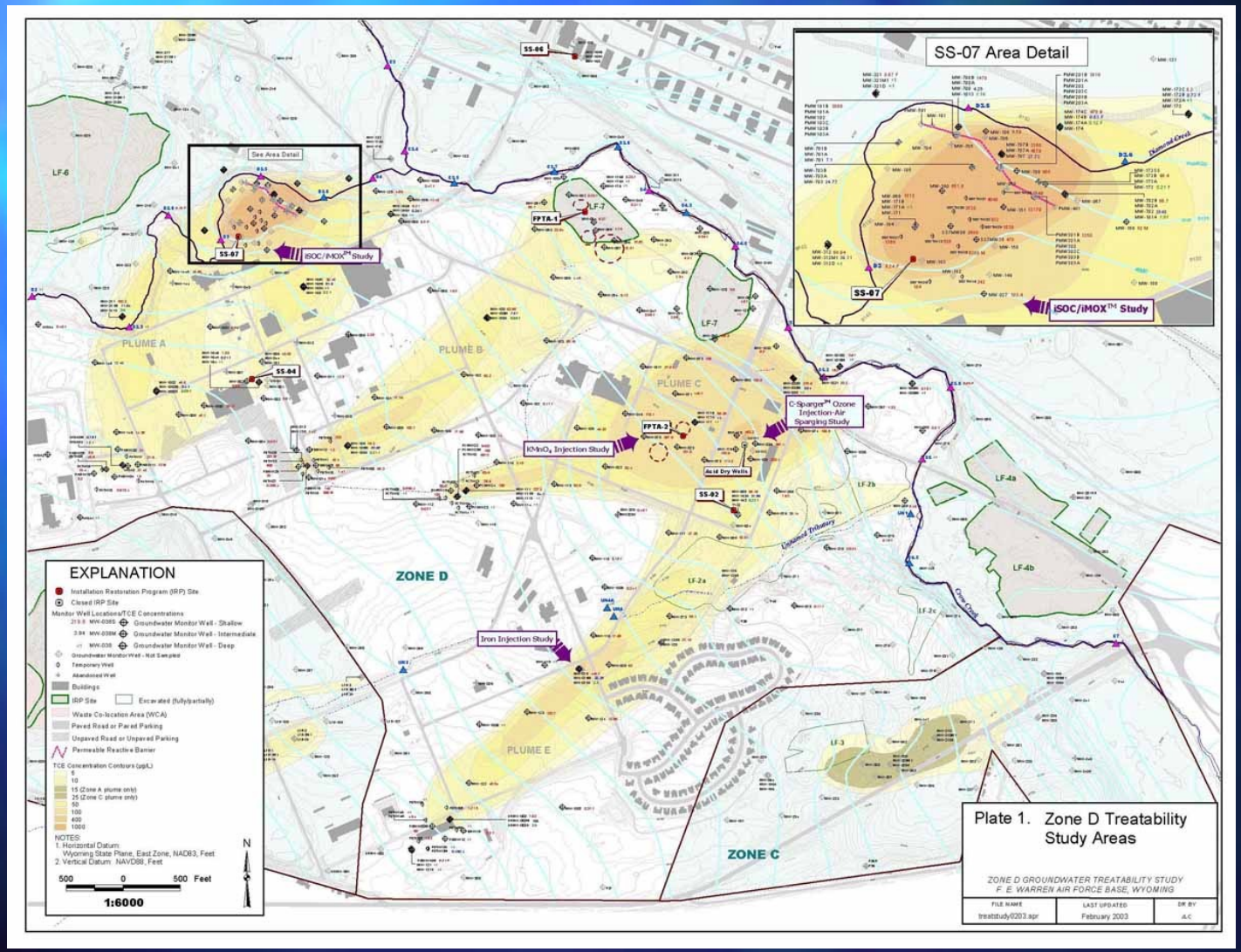
Draft Revised Proposed RAB Rule

ZONE D GROUNDWATER FEASIBILITY STUDY

OVERVIEW

- Site Background:
  - RAOs
  - Cleanup Strategies
  - Modeling
- Alternatives:
  - General Approach
  - By Plume

SITE LOCATION MAP



REMEDIAL ACTION OBJECTIVES

- Restoration of contaminated groundwater to beneficial use
  - TCE and degradation products to respective MCLs
- Prevent concentrations of TCE and degradation products from exceeding the applicable state surface water standards (Chapter 1 of the WWQRR)
- Prevent VOC vapors associated with groundwater plumes from accumulating to unacceptable levels in indoor air in proposed future buildings

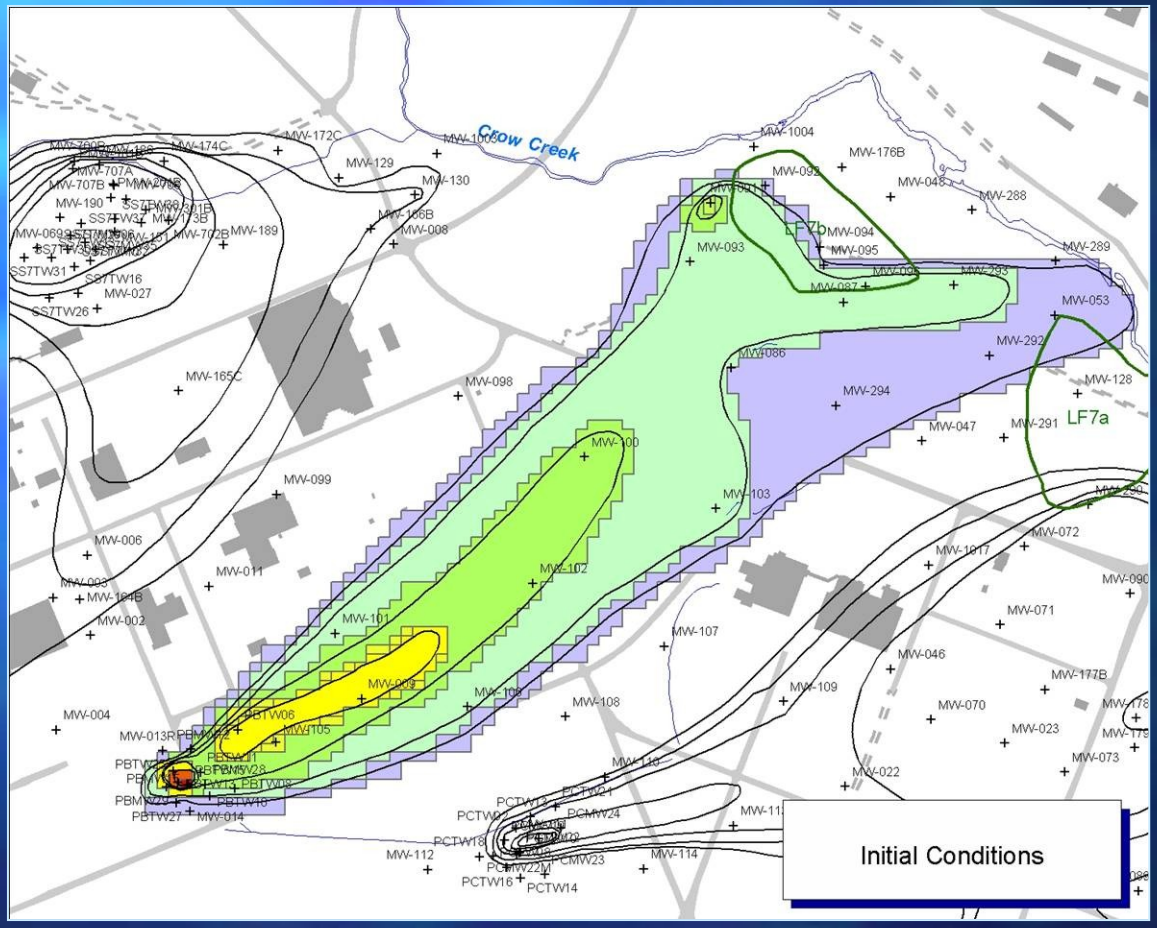
CLEANUP STRATEGIES

- Localized Reduction of Contaminant Mass
  - Focus on residual areas to shorten natural attenuation timeframes
- Natural attenuation
- Creek protection and surface water aeration
- Institutional control to limit TCE vapors in future buildings

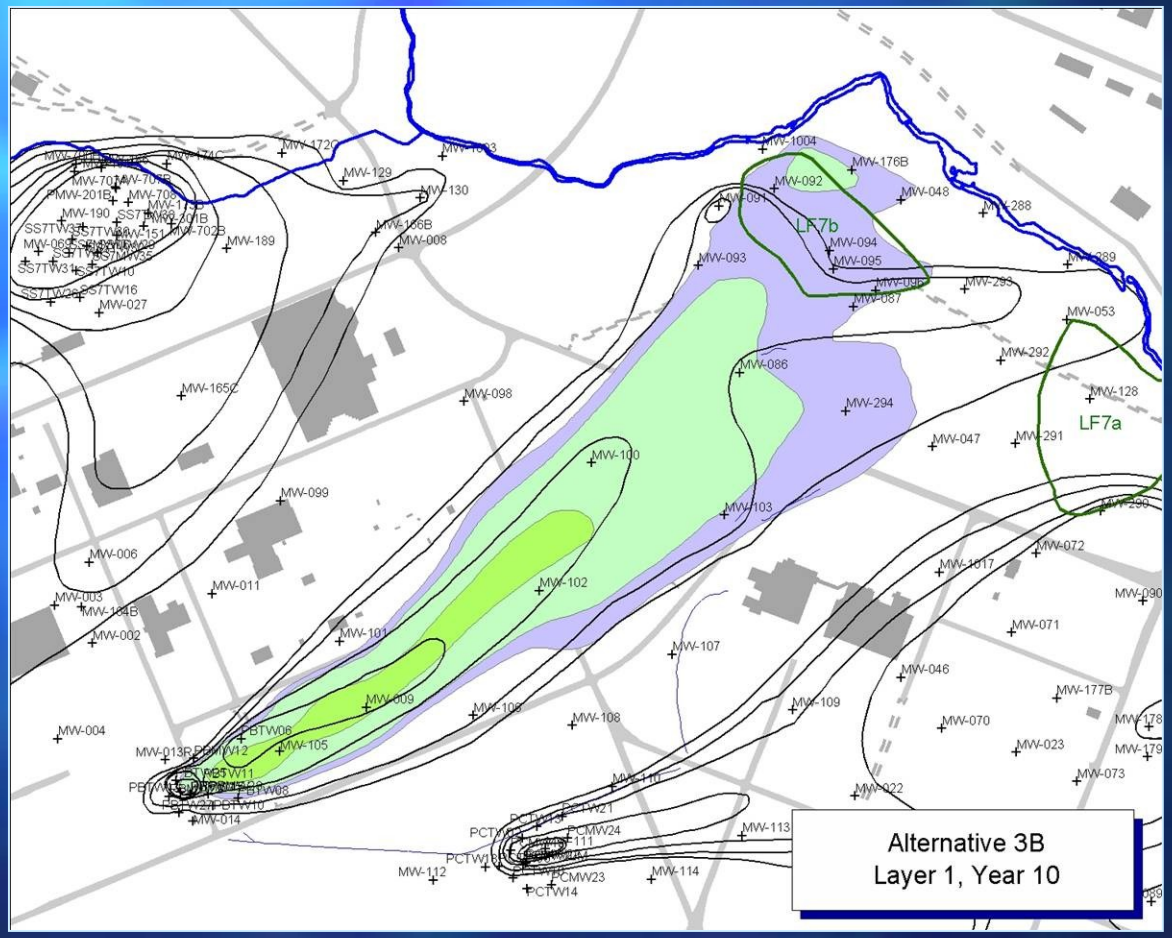
GW MODELING

- Model(s): ModFlow, MT3D
- Calibration
  - Flow model: Potentiometric surface, stream discharge, vertical gradients & compared to aquifer tests
  - Transport: Historic plume migration
- Alternative Simulations/Time Series
  - Initial condition
  - Year 10 to near end of MNA period
  - Plume B shallow zone is used in the following example

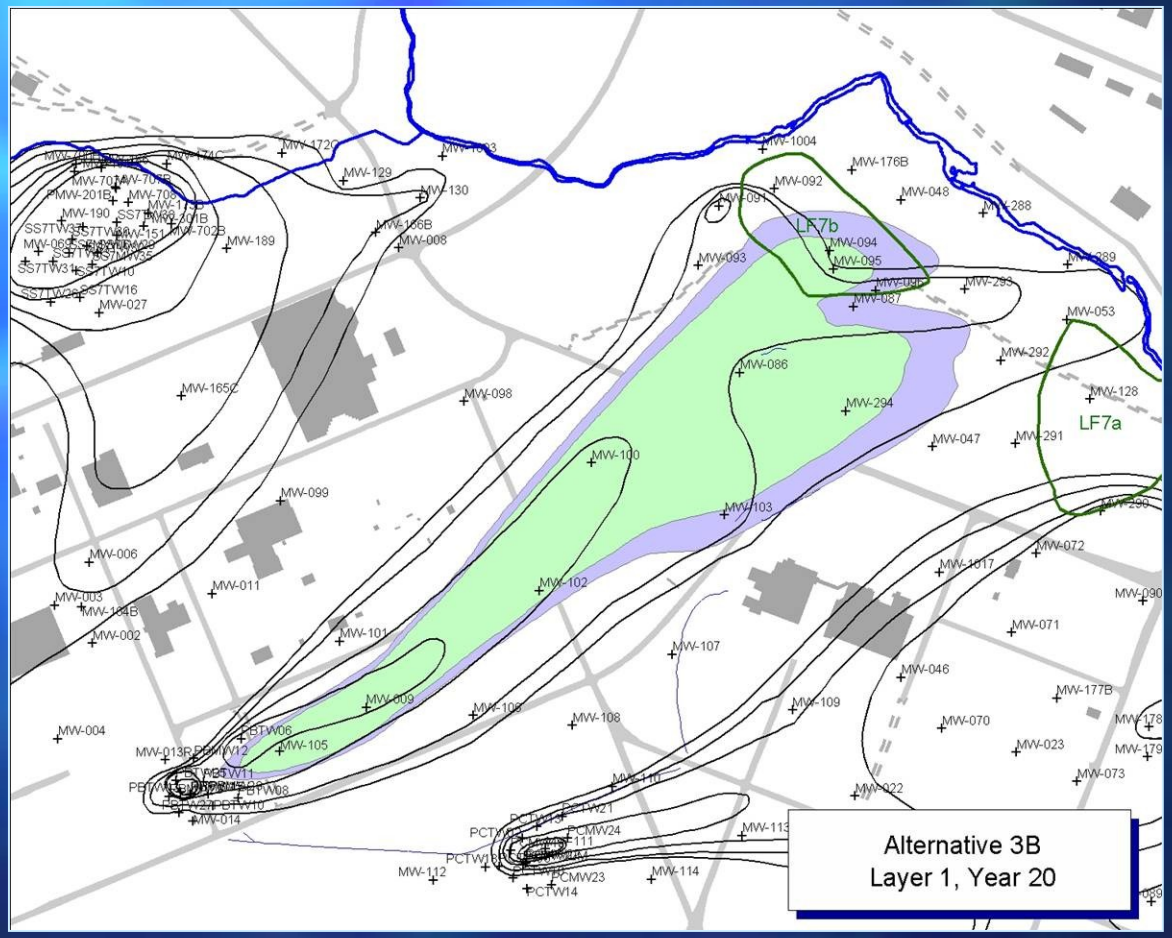
PLUME B - INITIAL



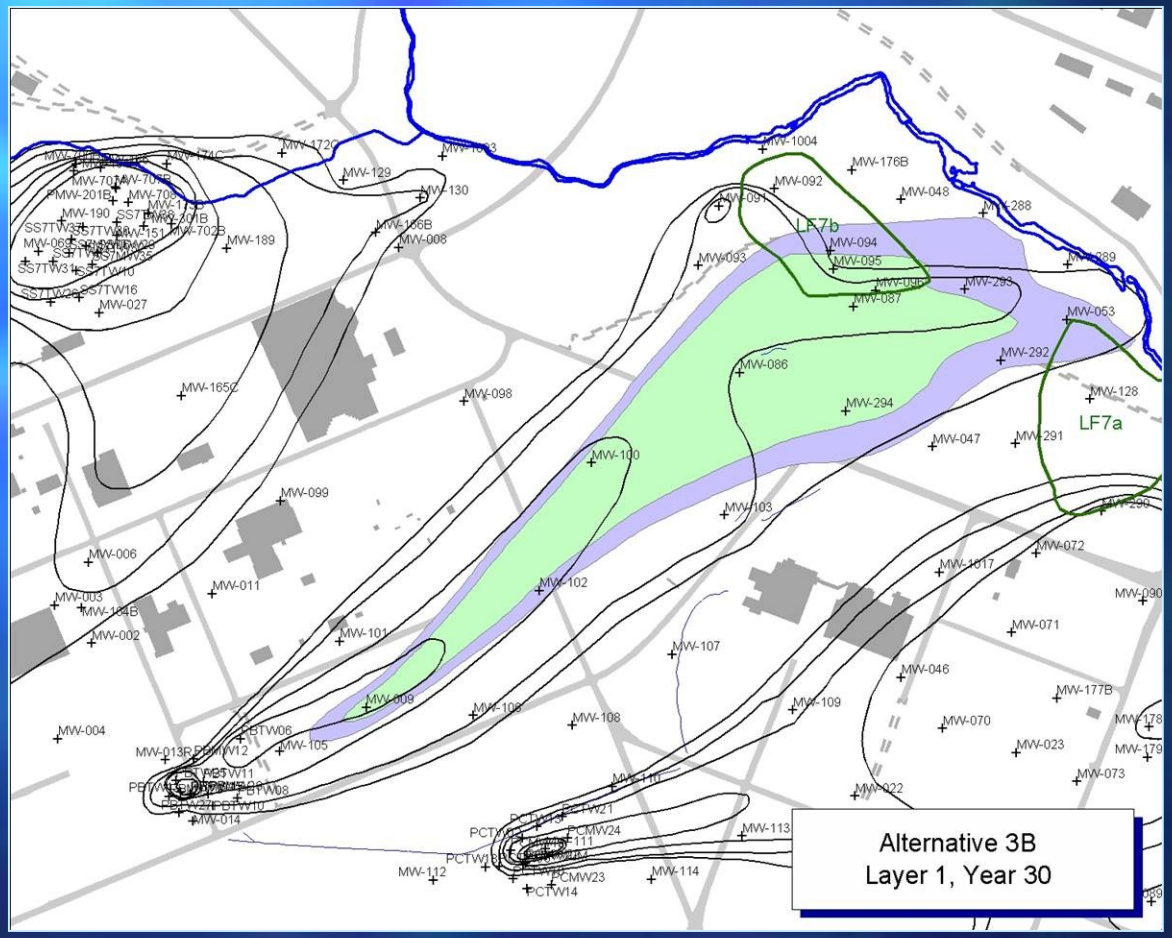
PLUME B – YEAR 10



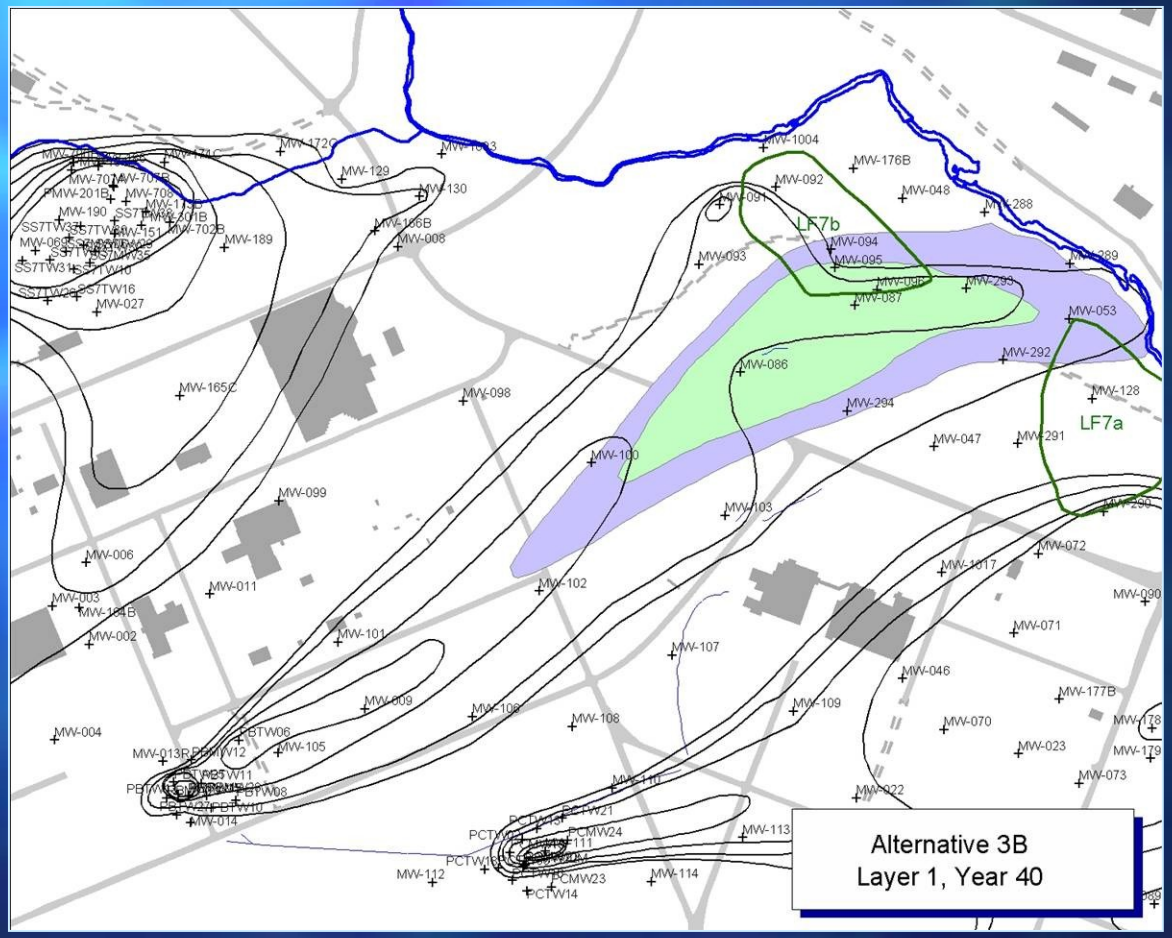
PLUME B – YEAR 20



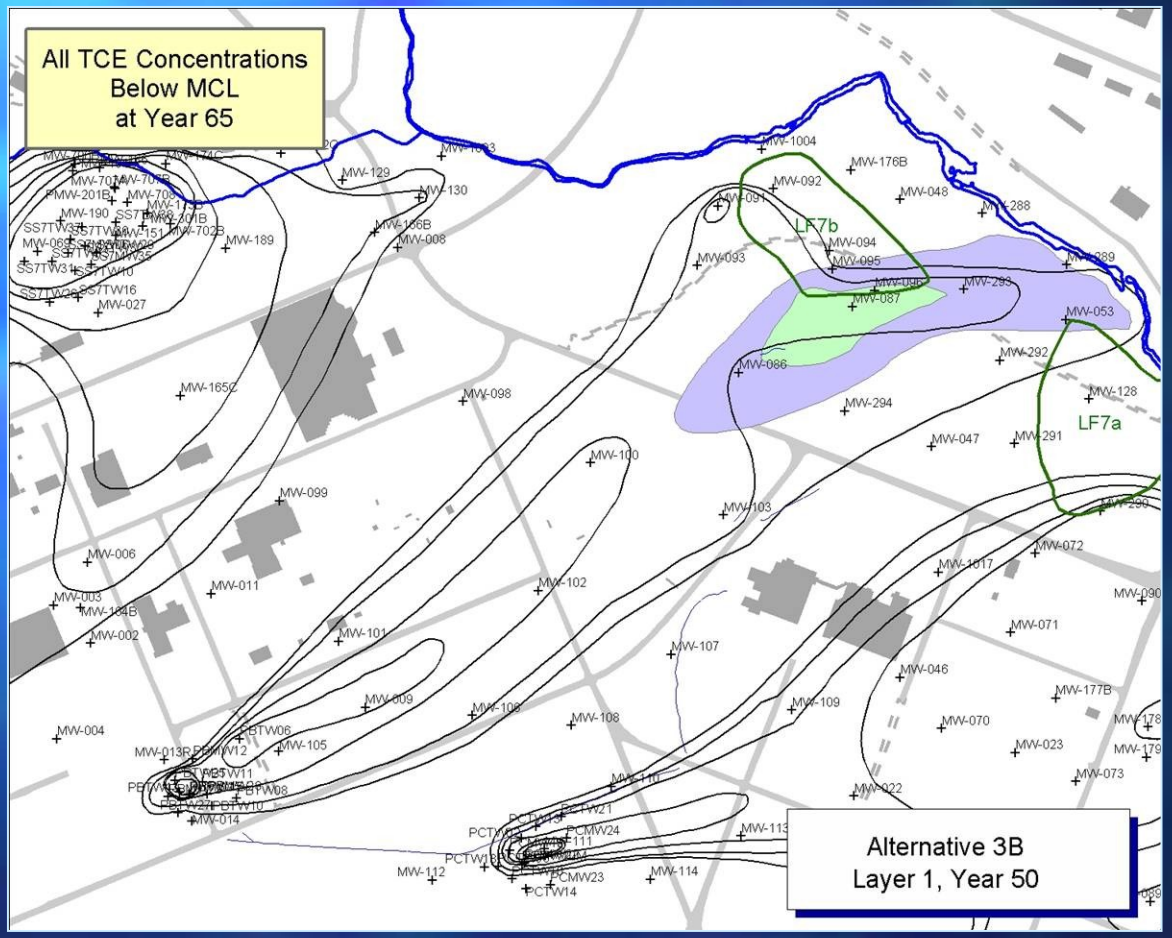
PLUME B – YEAR 30



PLUME B – YEAR 40



PLUME B – YEAR 50



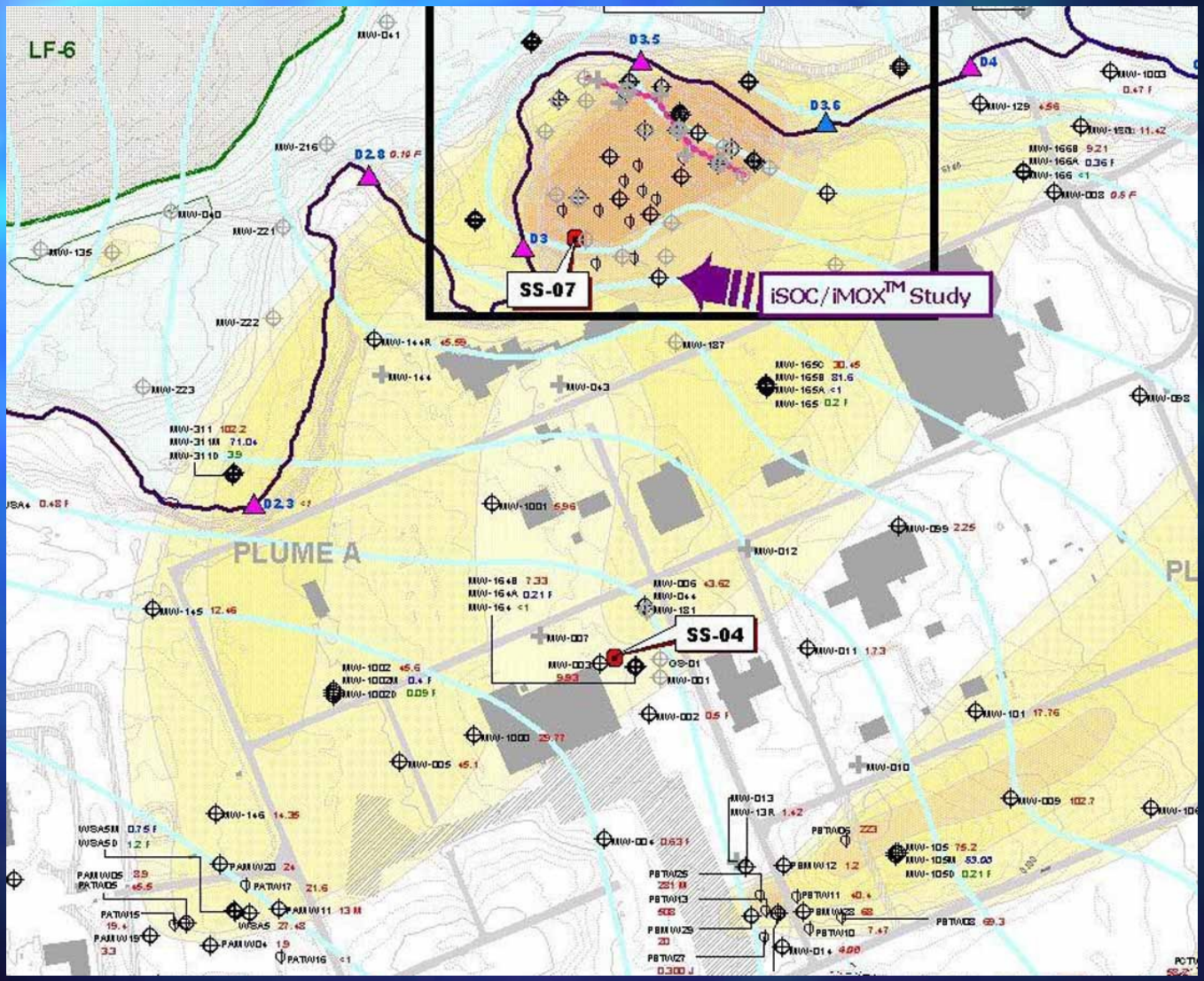
GENERAL APPROACH TO ALTERNATIVES

- 1 - No Action
  - Required by NCP
- 2 - Institutional Controls
- 3 - Monitored Natural Attenuation (MNA)
  - As applicable
- 4 - Groundwater Extraction, Ex-situ Treatment (P&T)
  - EPA Presumptive Remedy
  - As applicable (with MNA component)
- 5/6 - Hybrid Alternative(s)
  - Previous experience at similar sites
  - Site constraints
  - Time-frame

INSTITUTIONAL CONTROLS

- Applicable to all Zone D plumes
- Drinking water at FEW supplied by municipality
- Groundwater identified as ‘potential’ source
- Existing language in General Plan
- Primary addition to General Plan for all plumes relates to future buildings and potential for vapor migration
  - Sub-slab depressurization systems in risk areas

PLUME A SITE MAP



PLUME A (Excluding SS7)

- Plume area = 91 acres
- TCE_{MAX} = 102.2 µg/L; TCE_{MASS} = 37 kg
- No evidence of continuing source
- Plume stable, edges shrinking
  - ∀ ⇓ TCE over last 10-15 years
  - Biodegradation evident (presence of cis-1,2-DCE)
  - $Half\text{-}life_{AVG}$ for TCE ~ 6-8 years
- Plume intercepts & flows under Diamond Creek
  - Mass loading to Diamond Creek ~ 1.1 gm/day TCE
  - Empirical SW data < 1 µg/L TCE
  - Dilution, volatilization
- Sensitive species habitat along creek
  - Colorado Butterfly Plant & Preble's Meadow Jumping Mouse

PLUME A ALTERNATIVES

Shallow Zone Alternatives:

- 1A - No Action
- 2A - Institutional Controls
- 3A - MNA
- 4A - P&T & MNA
- 5A - Localized Bioaugmentation & MNA

Intermediate Zone Options:

- 1A-INT - No Action
- 2A-INT - Institutional Controls
- 3A-INT - MNA
- 4A-INT - Localized ChemOx & MNA

ALTERNATIVE 3A

MNA

- Monitoring:
  - 12 wells (S) + 4 wells (I) after shallow zone attenuates
  - Yr 1: Quarterly
  - Yrs 2-5: Annually
  - Once every 5 years thereafter
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 50 years
  - Intermediate: 120 years

ALTERNATIVE 4A

P&T & MNA

- P&T:
  - Presumptive Remedy
  - 103 2-Phase Extraction Wells (40 gpm total)
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 20 years
  - Intermediate: 120 years

ALTERNATIVE 5A

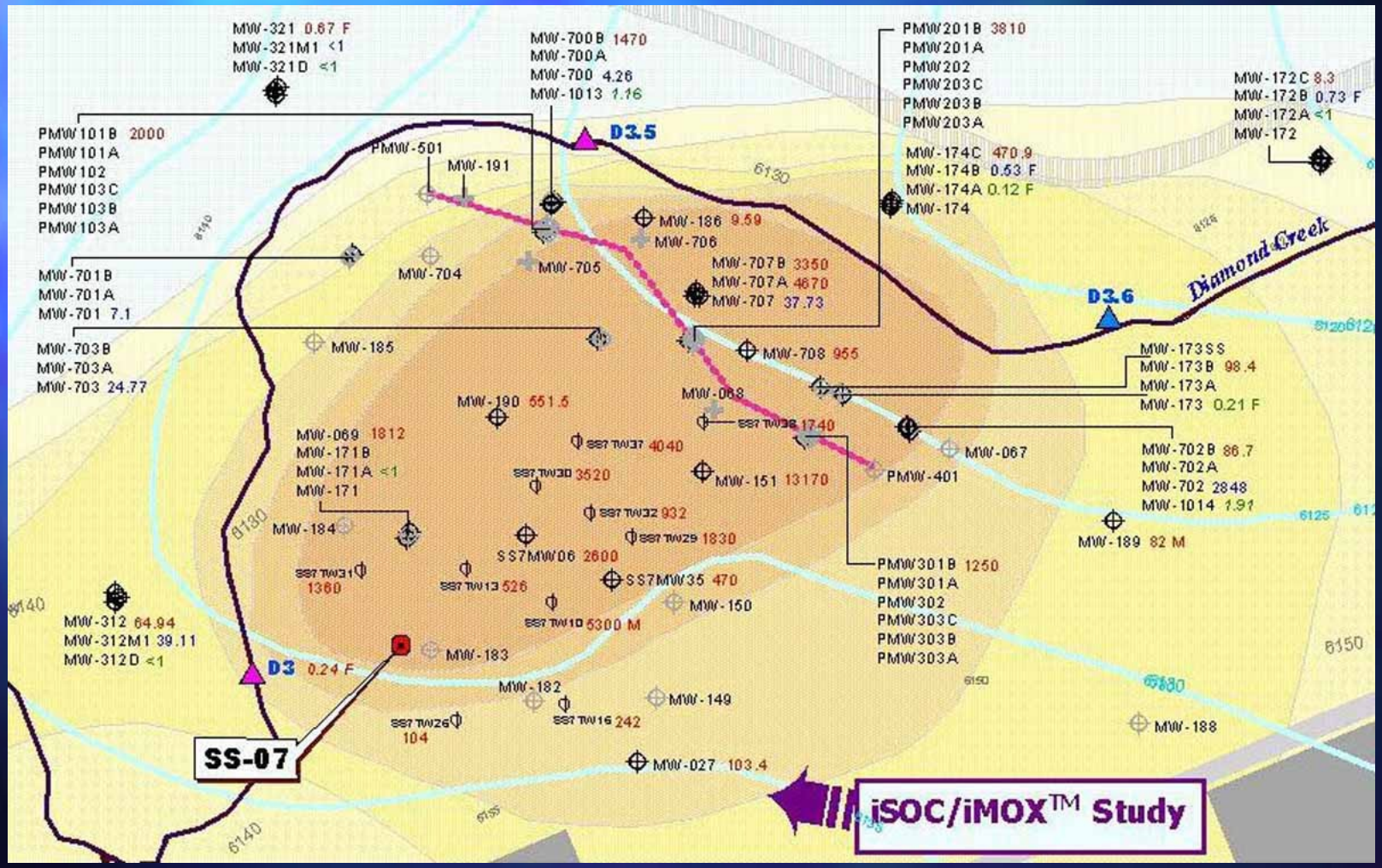
Localized Bioaugmentation & MNA

- Bioaugmentation:
  - Area of TCE > 100 µg/L (18.5 acres based on modeling)
  - 1076 injection wells, single injection, 2 lbs/inj.
- MNA :
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 35 years
  - Intermediate: 120 years

PLUME A SUMMARY

Alternative	Description	Timeframe to Achieve Groundwater RAOs (Years)	Capital Costs	Total Operations and Maintenance (O&M) Cost	Present Value Cost
1A	No Further Action	50	--	--	--
2A	Institutional Controls	50	$18,484	$119,350	$61,181
3A	MNA	50	$0	$2,616,440	$1,133,542
4A	Groundwater Extraction and *Ex situ* Treatment	20	$2,038,778	$9,608,942	$7,379,022
5A	Localized Bioaugmentation and MNA	35	$11,756,353	$2,324,076	$12,284,520
1A-INT	No Further Action	120	--	--	$1,200
2A-INT	Institutional Controls	120	$0	$119,350	$4,000 (Years 51-120)
3A-INT	MNA	120	$0	$4,452,780	$734,761
4A-INT	Localized ChemOx and MNA	110	$1,906,675	$3,623,598	$2,479,258

SS7 SITE MAP


MW-321 0.67 F
MW-321M1 <1
MW-321D <1
MW-700B 1470
MW-700A
MW-700 4.26
MW-1013 1.16
D3.5
PMW201B 3810
PMW201A
PMW202
PMW203C
PMW203B
PMW203A
MW-172C 8.3
MW-172B 0.73 F
MW-172A <1
MW-172
MW-174C 470.9
MW-174B 0.53 F
MW-174A 0.12 F
MW-174
PMW101B 2000
PMW101A
PMW102
PMW103C
PMW103B
PMW103A
PMW-501
MW-191
MW-186 9.59
MW-706
MW-705
MW-704
MW-707B 3350
MW-707A 4670
MW-707 37.73
MW-701B
MW-701A
MW-701 7.1
MW-703B
MW-703A
MW-703 24.77
MW-185
MW-708 955
D3.6
Diamond Creek
MW-173SS
MW-173B 98.4
MW-173A
MW-173 0.21 F
MW-190 551.5
MW-068
SS7TW36 1740
MW-069 1812
MW-171B
MW-171A <1
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SS7TW37 4040
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MW-151 13170
PMW-401
MW-067
MW-702B 86.7
MW-702A
MW-702 2848
MW-1014 1.91
SS7TW32 932
SS7TW29 1830
MW-184
SS7MW06 2600
MW-189 82 M
SS7TW31 1360
SS7TW13 526
SS7MW35 470
MW-150
SS7TW10 5300 M
PMW301B 1250
PMW301A
PMW302
PMW303C
PMW303B
PMW303A
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MW-312M1 39.11
MW-312D <1
D3 0.24 F
MW-183
MW-182
MW-149
SS7TW26 104
SS7TW16 242
MW-188
SS-07
MW-027 103.4
iSOC/iMOX™ Study

SPILL SITE 7

- Plume area = 11 acres
- TCE_{MAX} = 13,170 μg/L; TCE_{MASS} = 171kg
  - TCE ~ 21,000 μg/L in 1998
- IRA successfully implemented in 1999 using ZVI PRB
  - RAO's: reduce loading to creek and clean shallow GW
  - Integrate IRA into Final Remedy
  - PRB life-span 30-50 years
- Localized continuing sources (residual/adsorbed phase)
- Plume intercepts & flows under Diamond Creek
  - Mass loading to Diamond Creek estimated at 6.7 gm/day
  - Empirical SW data ~ 20 μg/L at D3.6
- Local groundwater divide - flow E-NE and NW
- Sensitive species habitat (CO Butterfly Plant & Preble's Mouse)

SPILL SITE 7 ALTERNATIVES

Shallow Zone Alternatives:

- 1S - No Action
- 2S - Institutional Controls
- 3S - Existing PRB & MNA
- 4S - Existing PRB, West PRB, & MNA
- 5S - Existing PRB, Bioaugmentation, & MNA
- 6S - ERH, ChemOx, & MNA (discount PRB)

Intermediate Zone Options:

- 1S-INT - No Action
- 2S-INT - Institutional Controls
- 3S-INT - MNA
- 4S-INT - Localized ChemOx & MNA

ALTERNATIVE 3S

Existing PRB & MNA

- Existing PRB
  - Life-span ~ 30-50 years
  - Assumes replacement PRB after 30 years
- MNA :
  - 12 shallow wells + 4 intermediate wells
  - Additional wells & surface water locations not costed
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 100 years
  - Intermediate: 290 years

ALTERNATIVE 4S

Existing PRB, West PRB, & MNA

- West PRB:
  - 500 ft long *x* 30 ft deep *x* 2 ft thick
- MNA:
  - 12 shallow wells + 4 intermediate wells
  - additional wells & surface water locations not costed
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 100 years
  - Intermediate: 290 years

ALTERNATIVE 5S

Existing PRB, Bioaugmentation, & MNA

- Bioaugmentation:
  - 459 injection wells, single injection, 2 lbs/inj.
- MNA:
  - 12 shallow wells + 4 intermediate wells
  - additional wells & surface water locations not costed
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 35 years
  - Intermediate: 290 years

ALTERNATIVE 6S

ERH, ChemOx, & MNA (discount existing PRB)

- ERH/SVE:
  - Applied to areas with TCE > 5000 µg/L
  - 58 electrodes, 58 extraction wells
- ChemOx (Fenton's Reagent):
  - Applied to areas with TCE > 1000 µg/L
  - ~ 2 acres (20 ft grid)
- ChemOx ($KMnO_4$):
  - Applied to areas with TCE > 80 µg/L
  - ~ 2 acres, 430 total ChemOx injection points (20 ft grid)
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 85 years
  - Intermediate: 290 years

SPILL SITE 7 SUMMARY

Alternative	Description	Timeframe to Achieve Groundwater RAOs (Years)	Capital Costs	Total O&M Cost	Present Value Cost
1S	No Further Action	100	--	--	--
2S	Institutional Controls	100	$18,484	$238,700	$64,981
3S	Existing PRB & MNA	100	$6,085,270	$4,565,970	$1,918,270
4S	Extend Existing PRB, West PRB, & MNA	100	$15,332,154	$4,565,970	$4,617,360
5S	Existing PRB, Bioaugmentation, & MNA	35	$2,478,272	$2,284,053	$3,467,083
6S	ERH, Chemical Oxidation, & MNA (discount Existing PRB)	85	$7,942,981	$4,045,636	$8,766,749
1S-INT	No Further Action	290	--	--	$1,200
2S-INT	Institutional Controls	290	$0	$167,090	$245 (Years 101-290)
3S-INT	MNA	290	$0	$11,447,165	$741,263
4S-INT	Localized ChemOx & MNA	175	$592,380	$5,244,772	$1,219,615

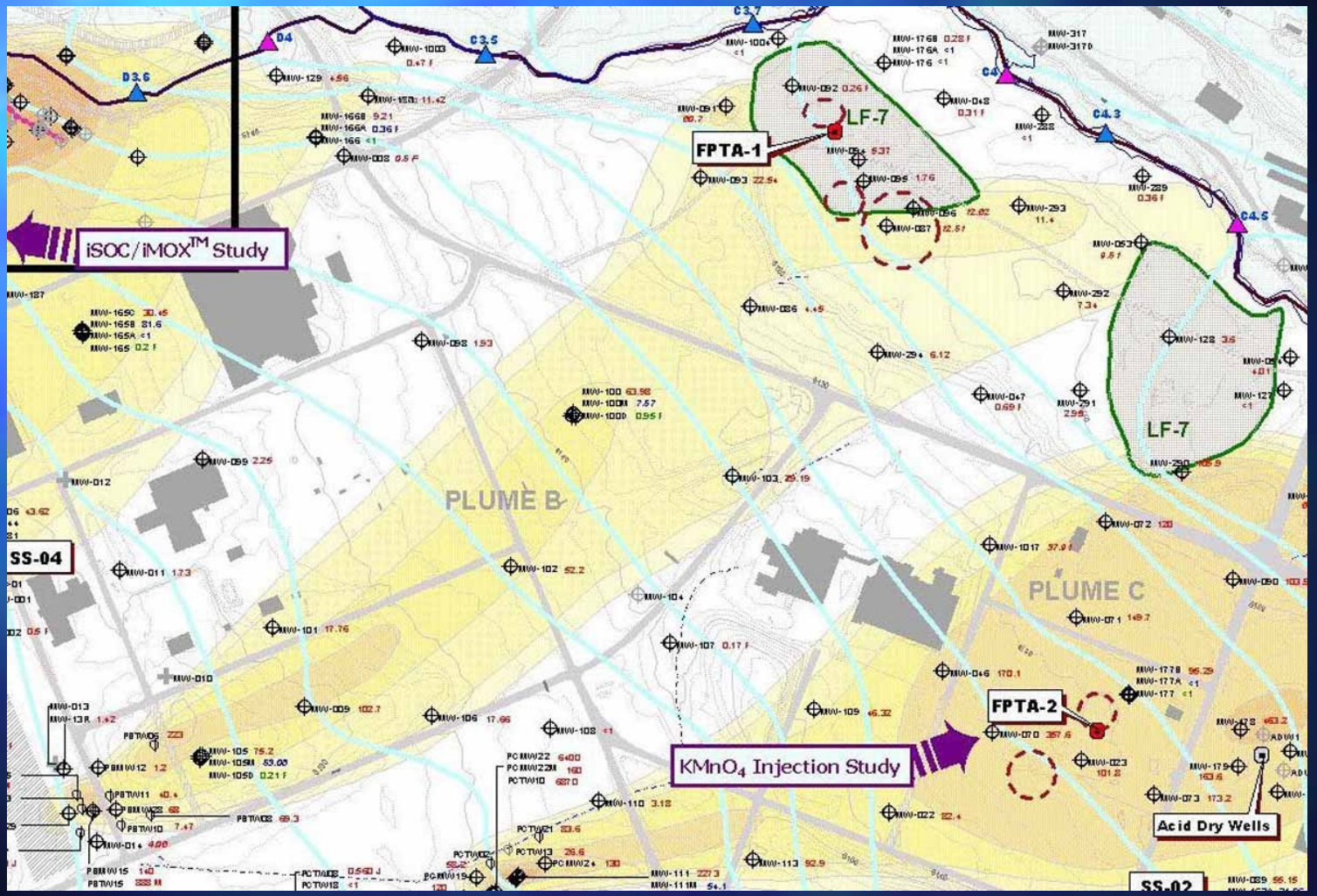
Surface Water Treatment Options

Groundwater at SS7 discharges to Diamond Creek (Class 3B; no TCE standard)

Discharge of Diamond Creek to Crow Creek (Class 2AB; TCE standard=2.7ug/L) can potentially lead to TCE exceedances in Crow Creek.

- **Channel Drop Structures - *$35 to $60K***
- Instream Fountain - *$45 to $80K*
- Indoor Water Cascade - *$55 to $100K*
- Instream Bubbler - *$65 to $90K*

PLUME B SITE MAP



PLUME B

- Plume area = 71 acres
- TCE_{MAX} = 102.7 µg/L; TCE_{MASS} = 48 kg; $cDCE_{MAX}$=123 µg/L
  - Source RI TCE_{MAX} = 888 µg/L
- No evidence of continuing source (residual/adsorbed phase)
- Plume stable, edges shrinking
  - ⇓ TCE over last 10-15 years
  - Biodegradation evident (presence of *cis*-1,2-DCE)
  - $Half\text{-}life_{AVG}$ for TCE ~ 7 years
- Plume attenuates in floodplain of Crow Creek
  - Dilution, volatilization
  - Mass loading to Crow Creek ~ 0.6 gm/day
  - Empirical SW data < 1 µg/L

PLUME B ALTERNATIVES

Shallow Zone Alternatives:

- 1B - No Action
- 2B - Institutional Controls
- 3B - MNA
- 4B - P&T & MNA
- 5B - ChemOx & MNA

Intermediate Zone Options:

- 1B-INT - No Action
- 2B-INT - Institutional Controls
- 3B-INT - MNA
- 4B-INT - Localized ChemOx & MNA

ALTERNATIVE 3B

MNA

- MNA :
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 65 years
  - Intermediate: 110 years

ALTERNATIVE 4B

P&T & MNA

- P&T:
  - 23 extraction wells, 30 gpm
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 30 years (10 yrs P&T + 20 yrs MNA)
  - Intermediate: 110 years

ALTERNATIVE 5B

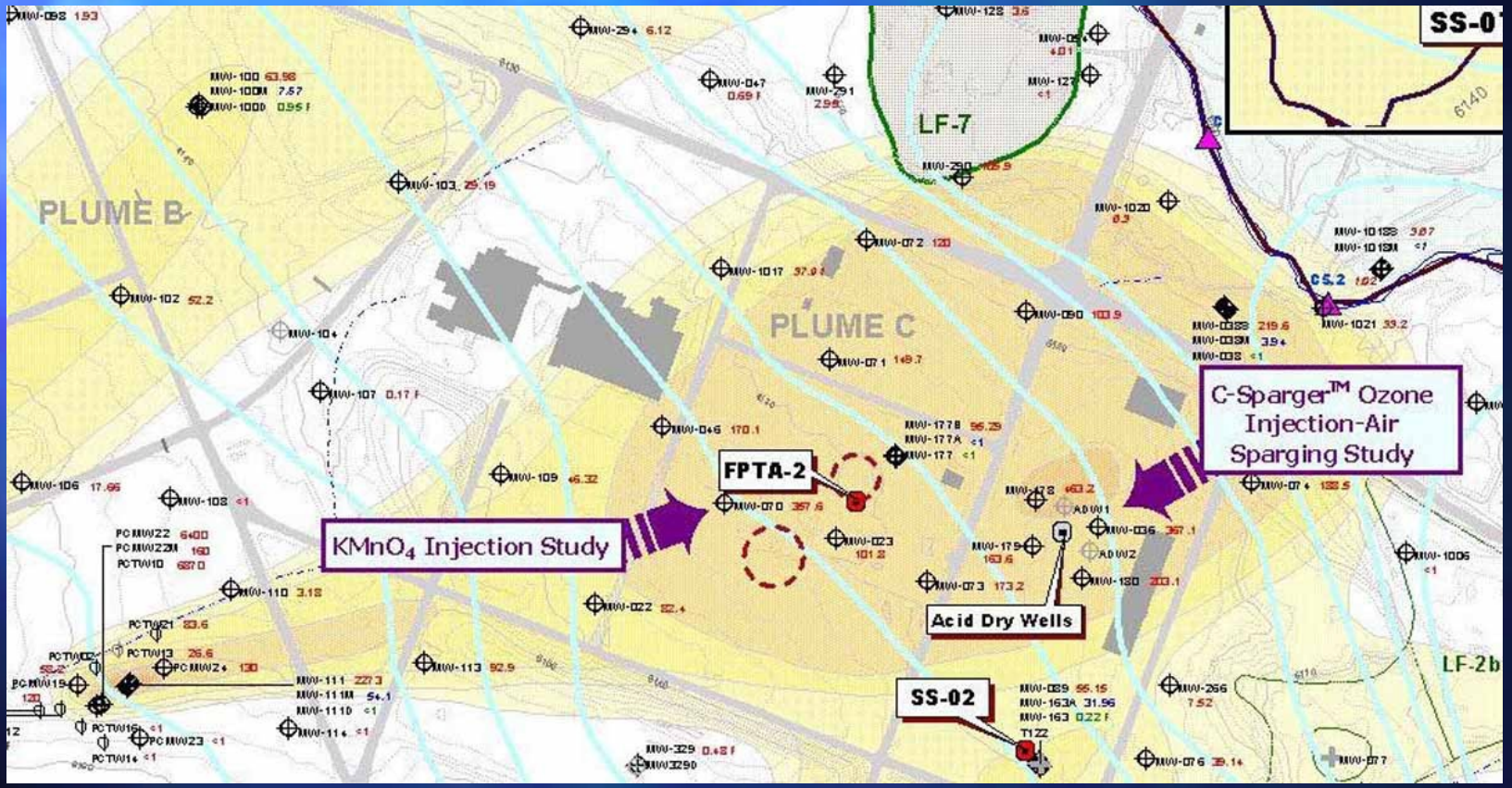
ChemOx & MNA

- ChemOx ($KMnO_4$):
  - Applied to area above and in intermediate plume
  - > 50 µg/L
  - ~ 4 acres, 139 injection points (20 ft grid)
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 35 years
  - Intermediate: 35 years

PLUME B SUMMARY

Alternative	Description	Timeframe to Achieve Groundwater RAOs (Years)	Capital Costs	Total O&M Cost	Present Value Cost
1B	No Further Action	65	--	--	--
2B	Institutional Controls	65	$18,484	$155,155	$63,341
3B	MNA	65	$0	$4,461,154	$1,619,883
4B	Groundwater Extraction, *Ex situ* Treatment, & MNA	30	$1,176,281	$6,783,913	$5,361,029
5B	ChemOx & MNA	35	$914,625	$3,247,947	$2,391,476
1B-INT	No Further Action	110	--	--	$1,200
2B-INT	Institutional Controls	110	$0	$105,028	$1,765 (Years 66-110)
3B-INT	MNA	110	$0	$3,912,184	$700,323
4B-INT	Localized ChemOx & MNA	35	$1,500,411	$1,279,268	$2,030,068

PLUME C SITE MAP



PLUME C

- Plume area = 79 acres
- TCE_{MAX} = 2,273 µg/L; TCE_{MASS} = 191 kg
  - TCE ~ 6,870 µg/L in test well (Source RI)
- Localized continuing sources (residual/adsorbed phase)
  - locally TCE ⇑
- Portions of plume stable, edges shrinking
  - ∀ TCE less than other plumes
  - Biodegradation evident (presence of cis-1,2-DCE)
  - $Half\text{-}life_{AVG}$ for TCE ~ 12 years
- Plume intercepts & flows under Crow Creek
  - Mass loading to Crow Creek estimated at 3.7 gm/day
  - Empirical SW data ~ < 1 µg/L but a maximum of 12 at C5.2
- Sensitive species habitat (CO Butterfly Plant & Preble's Mouse)

PLUME C ALTERNATIVES

Shallow Zone Alternatives:

- 1C - No Action
- 2C - Institutional Controls
- 3C - P&T & MNA
- 4C – ChemOx (plume head), Localized ChemOx, PRB, & MNA
- 5C - ERH/SVE (plume head), Localized ChemOx, PRB, & MNA
- 6C - P&T (plume head), Localized ChemOx, PRB, & MNA

Intermediate Zone Options:

- 1C-INT - No Action
- 2C-INT - Institutional Controls
- 3C-INT - MNA
- 4C-INT - Localized ChemOx & MNA

ALTERNATIVE 3C

P&T & MNA

- P&T:
  - 67 extraction wells, 53 gpm
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 30 years (20 yrs P&T + 10 yrs MNA)
  - Intermediate: 100 years

ALTERNATIVE 4C

ChemOx (head), Localized ChemOx, PRB, & MNA

- ChemOx (Fenton's Reagent):
  - Applied to plume head (~ 0.5 acre treatment zone)
  - 46 electrodes, 46 extraction wells
- ChemOx ($KMnO_4$):
  - Applied to areas with TCE > 300 µg/L (~ 2 acres)
  - 112 wells, 113 injection points (20 ft grid) for all chem-ox
- PRB (creek intercept): ~ 800 feet long
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 50 years
  - Intermediate: 100 years

ALTERNATIVE 5C

ERH/SVE, ChemOx, PRB, & MNA

- ERH/SVE:
  - Applied to plume head (~ 0.5 acre treatment zone)
  - 46 electrodes, 46 extraction wells
- ChemOx ($KMnO_4$):
  - Applied to areas with TCE > 300 µg/L
  - ~ 2 acres, 89 injection points (20 ft grid)
- PRB (creek intercept): ~ 800 feet long
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 50 years (5 yrs P&T + 45 yrs MNA)
  - Intermediate: 100 years

ALTERNATIVE 6C

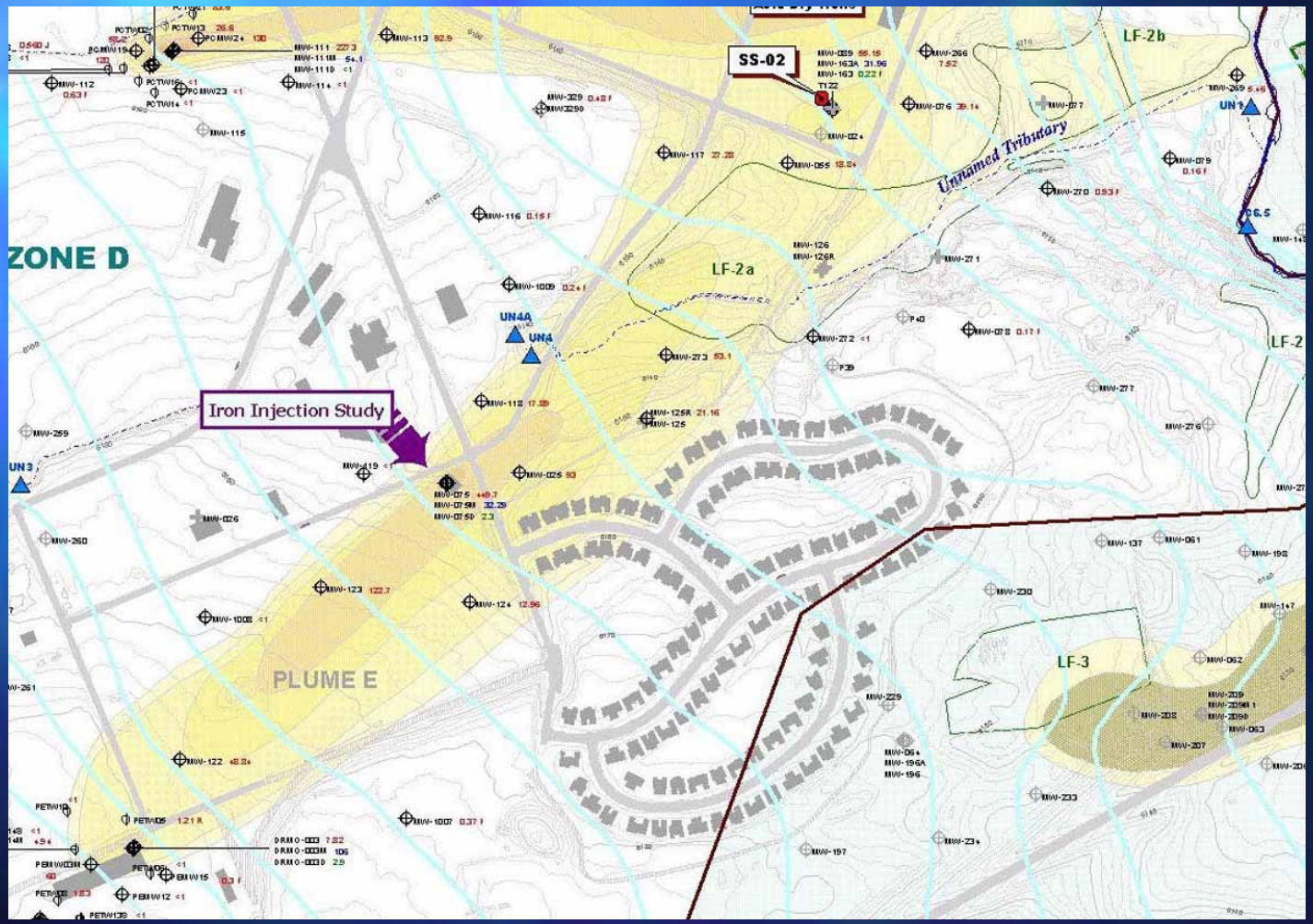
P&T, ChemOx, PRB, & MNA

- P&T:
  - Applied to plume head (~ 0.5 acre treatment zone)
  - 6 extraction wells, 13 gpm
- ChemOx ($KMnO_4$):
  - Applied to areas with TCE > 300 µg/L
  - ~ 2 acres, 89 injection points (20 ft grid)
- PRB (creek intercept): ~ 800 feet long
- MNA:
  - 12 shallow wells + 4 intermediate wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 50 years (5 yrs P&T + 45 yrs MNA)
  - Intermediate: 100 years

PLUME C SUMMARY

Alternative	Description	Timeframe to Achieve Surface Water RAOs (Years)[1]	Timeframe to Achieve Groundwater RAOs (Years)	Capital Costs	Total O&M Costs	Present Value Cost
1C	No Further Action	55	unknown	--	--	--
2C	Institutional Controls	55	unknown	$18,484	$167,090	$63,775
3C	Groundwater Extraction, *Ex situ* Treatment, & MNA	<5	30	$2,082,278	$11,069,595	$8,168,509
4C	ChemOx (head), Localized ChemOx, PRB, & MNA	<5	50	$3,439,306	$3,787,487	$4,861,129
5C	ERH/SVE, Localized ChemOx, PRB, & MNA	<5	50	$5,954,943	$3,939,330	$7,280,204
6C	Groundwater Extraction, *Ex situ* Treatment, Localized ChemOx, & MNA	<5	50	$3,460,848	$5,610,616	$6,391,207
1C-INT	No Further Action	N/A	100	--	--	$1,200
2C-INT	Institutional Controls	N/A	100	$0	$69,223	$1,132 (Years 71-100)
3C-INT	MNA	N/A	100	$0	$3,200,364	$840,958
4C-INT	Localized ChemOx & MNA	N/A	60	$1,771,712	$1,522,530	$2,307,002

PLUME E SITE MAP



PLUME E

- Plume area = 80 acres
- TCE_{MAX} = 449.7 µg/L; TCE_{MASS} = 106 kg
  - Benzene ~ 10.7 µg/L at single location near head; no RAO
- No evidence of continuing source (residual/adsorbed phase)
- Plume stable, edges shrinking
  - ⇓ TCE over last 10-15 years
  - Biodegradation evident (presence of cis-1,2-DCE)
  - Half-life$_{AVG}$ for TCE ~ 5 years
- Plume attenuates in floodplain of Crow Creek
  - Dilution, volatilization
  - Mass loading to Crow Creek ~ 0.3 gm/day
  - Empirical SW data < 1 µg/L

PLUME E ALTERNATIVES

Shallow Zone Alternatives:

- 1E - No Action
- 2E - Institutional Controls
- 3E - MNA & Existing PRB
- 4E - P&T, MNA, & Existing PRB
- 5E - Localized Bioaugmentation, MNA, & Existing PRB
- 6E - Localized ChemOx & MNA (discount PRB)

Intermediate Zone Options:

- 1E-INT - No Action
- 2E-INT - Institutional Controls
- 3E-INT - MNA
- 4E-INT - Localized ChemOx & MNA

ALTERNATIVE 3E

MNA & Existing PRB

- MNA:
  - 12 shallow wells + 4 intermediate wells
- PRB from Treatability Study
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 70 years
  - Intermediate: 130 years

ALTERNATIVE 4E

P&T, MNA, & Existing PRB

- P&T:
  - 30 extraction wells, 35 gpm, 10 yrs
- MNA:
  - 12 shallow wells + 4 intermediate wells
- PRB from Treatability Study
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 40 years (10 yrs P&T, then 30 years MNA)
  - Intermediate: 130 years

ALTERNATIVE 5E

Localized Bioaugmentation, MNA, & Existing PRB

- Bioaugmentation:
  - 0.83 acres, 1141 injection points
- MNA:
  - 12 shallow wells + 4 intermediate wells
- PRB from Treatability Study
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 40 years
  - Intermediate: 130 years

ALTERNATIVE 6E

ChemOx & MNA (discount existing PRB)

- ChemOx ($KMnO_4$):
  - Applied to area S > 50 µg/L
  - ~ 4 acres, 1141 injection points (20 ft grid)
- MNA:
  - 12 wells + 4 wells
- Time to achieve RAOs (TCE < 5 µg/L)
  - Shallow: 40 years
  - Intermediate: 130 years

PLUME E SUMMARY

Alternative	Description	Timeframe to Achieve Groundwater RAOs (Years)	Capital Costs	Total O&M Cost	Present Value Cost
1E	No Further Action	70	--	--	--
2E	Institutional Controls	70	$18,484	$167,090	$63,775
3E	MNA & Existing PRB	70	$0	$4,711,571	$1,627,952
4E	Groundwater Extraction, *Ex situ* Treatment, MNA, & Existing PRB	40	$1,351,304	$7,138,460	$5,583,086
5E	Bioaugmentation, MNA, Existing PRB	40	$9.022,858	$3,743,748	$10,141,585
6E	Localized ChemOx & MNA (discount Existing PRB)	40	$6,476,174	$3,497,868	$7,714,007
1E-INT	No Further Action	130	--	--	$1,200
2E-INT	Institutional Controls	130	$0	$140,833	$1,298 (Years 71-130)
3E-INT	MNA	130	$0	$4,623,337	$685,885
4E-INT	Localized ChemOx & MNA	35	$6,653,958	$1,279,268	$6,938,208

SUMMARY OF RECOMMENDED ALTERNATIVES

PLUME	ALTERNATIVE	DESCRIPTION	COST
A	3A	MNA	$1,133,542
	3A-INT	MNA	$ 794,761
SS7	5S	Existing PRB, Bioaug, & MNA	$4,208,345
	3S-INT	MNA	$ 741,263
B	3B	MNA	$1,619,883
	3B-INT	MNA	$ 700,323
C	4C	ChemOx (head), Localized ChemOx, PRB, and MNA	$5,520,831
	3C-INT	MNA	$ 840,958
E	3E	MNA & Existing PRB	$1,627,192
	3E-INT	MNA	$ 685,885

DISCUSSION/Q&A SESSION

MEETING LOGISTICS

May 18, 2004

Little America

ADJOURNMENT